Environmental Economics — Syllabus

EconS 582 (3 credits) — **Fall 2025**

M, W 9:10-10:25a.m
CLAR 147

Instructor: Ana Espinola-Arredondo, Hulbert 111E, anaespinola@wsu.edu
Office hours: Thursdays 9:00-10:00, or by appointment.
Class webpage: https://anaespinolaarredondo.com/econs-582/
Prerequisite: EconS 501 or equivalent.

Content and Purpose:
This course analyzes the theoretical tools and empirical techniques necessary for understanding of resource and environmental economics, developed in both static and dynamic framework. The main focus of the course is on the theory of externalities and regulation theory, as applied to environmental problem. The course gives a special emphasis to environmental problems using game theory and mechanism design. The major objectives of this class are: (1) to enhance the student's ability to conduct professional economic research and to develop and present professional proposals, papers, and presentations; and (2) to increase the student's ability to analyze environmental policies through a deeper understanding of economic behavior and incentives; economic institutions, property rights and contracts.

Texts and Assigned Readings:
The course does not follow any text in particular. There are some books —available in the library— that are referenced a few times:

- **MWG:** A. Mas-Colell, M. Whinston and J. Green, Microeconomic Theory, Oxford University Press, New York, 1995.
- **Kolstad:** Charles Kolstad, Environmental Economics, Oxford University Press, 2000.
- **B&O:** William J. Baumol andWallace E. Oates, The Theory of Environmental Policy, 2nd edition, Cambridge University Press, 1988.
- **Reny:** Geoffrey Jehle and Philip Reny. (JR) Advanced Microeconomic Theory. 2nd ed. Reading, MA: Addison-Wesley, 2000.

Reading List
You are not expected to read everything that is on this list. However, the readings marked with a "snow flake" should be read in advance of the corresponding class. Note that I may change some of the readings, depending on the class interest. Most article readings are available through *WWW.JSTOR.ORG*. I will post on the class webpage copies of the papers that we will study during class.

Assignments and Evaluation:
One midterm and four assignments will count 20% and 35% respectively in determining the course grade. A Presentation/submission of a 15-page proposal for your own paper idea. Submission of the 15-page proposal is due on or before the last class meeting May 2nd, 2020; no late submissions will be accepted. A brief oral presentation of the proposal is also required and will be scheduled for the last two weeks of the semester. Midterm and final makeup's are possible only if reasons beyond the student's control can be verified. Please note that all items in this syllabus are subject to change at the discretion of the professor.

Assignments	Number	Percentage
Midterm	1	20%
Homework	3	35%
Written Proposal	1	20%
Oral Presentation	2	25%
Total		100%

Grading Scale:

A	**95-100**	**C-**	**50-54**
A-	**85-94**	**D+**	**45-49**
B+	**80-84**	**D**	**40-44**
B	**70-79**	**F**	**0-39**
B-	**65-69**		
C+	**60-64**		
C	**55-59**		

Tentative Class Calendar and Topics:

Date	Topic	Assignment
August 18th	Introduction	
August 20th	**Efficiency and Markets** – Kolstad CH 4 * – Reny CH 7, pp 280-302 *	
August 25th	**Externalities:** – Kolstad CH 5* – MWG CH 11* – B&O CH 4* – R. Coase (1960), *The Problem of Social Cost*, Journal of Law and Economics 3, 1-44. – Karl-Goran Maller (1989), *The Acid Rain game*, Valuation Methods and Policy Making in Environmental Economics (Studies in Environmental Science 36) (Elsevier), 231–52 * – Oxoby R. and J. Spraggon (2009), *Game Theory For Playing games: Sophistication in a Negative Externality Experiment*, Economic Inquiry, Forthcoming. – Erik T. Verhoef (1999), *Externalities*, In: J.C.J.M. van den Bergh (ed.), Handbook of Environmental and Resource Economics Edward Elgar, Cheltenham, 197-214 – Hal R. Varian (1994), *A Solution to the Problem of Externalities When Agents Are Well-Informed*, The American Economic Review, Vol. 84, No. 5, pp. 1278-1293 * Montero, J.-P. (2008), *A simple auction mechanism for the optimal allocation of the commons*, American Economic Review, March. * Spulber, D. (1988), *Optimal environmental regulation under asymmetric information*, Journal of Public Economics 35, 163-181. * Ana Espinola-Arredondo (2008), *Green Auctions: A biodiversity study of mechanism design with externalities*, Ecological Economics, vol. 67(2), pages 175-183 – Tracy Lewis (1996), *Protecting the Environment When Costs and Benefits are Privately Known*, Rand Journal of Economics 27 (4), 819-847.	HW 1 (due 09/03)
August 27th	Continued	
September 1st	**Labor Day – No Class**	
September 3th	**Property Rights** – Kolstad CH 6* – Kolstad CH 5* – Stergios Skarperdas (1992) *Cooperation, Conflict, and Power in the Absence of Property Rights*, The American Economic Review, Vol. 82, No. 4, pp. 720-739* – Oxoby R. and J. Spraggon (2008), *"Mine and Yours: Property Rights in Dictator Games."* Journal of Economic Behavior and Organization, 65, pp.703-713.	

	– J. Farrell, *"Information and the Coase Theorem,"* Journal of Economic Perspectives, 1 (Fall 1987), 113-129.*	
September 8th	Continued	HW 2 (due 09/29)
September 10th	**Pigovian Fees** – Kolstad CH 7* – R. D. Horan, J. S. Shortle and D. G. Abler (1998), *Ambient taxes when polluters have multiple choices*, Journal of Environmental Economics and Management 36 – K. Segerson (1988), *Uncertainty and incentives for nonpoint pollution control*, Journal of Environmental Economics and Management 15, pp. 87–98. – A. Xepapadeas (1991), *Environmental policy under imperfect information: Incentives and moral hazard*, Journal of Environmental Economics and Management 20, pp. 113–126. – Pezzey, W. (2003), *Emission Taxes and Tradable Permits:A Comparison of Views on Long Run Efficiency*, Environment and Resource Economics, 26(2), 329-342 – E. Sheshinski,(2002) *"Note on Atmosphere Externality and Corrective Taxes,"* Discussion Paper 84, Center for Rationality and Interactive Decision Theory, Hebrew University, Jerusalem.	
September 15th	**Environmental Policy** – Kolstad CH 8 and 9* – Oates et al. (1989), *The Net Benefits of Incentive-based Regulation: A case study of environmental standard Setting*, American Economic Review 79, 1233-1242.* – Kolstad, Ulen and Johnson (1990), *Ex ante regulation vs. ex post liability for harm: Substitutes or complements?* American Economic Review *. – Cropper, M. y W. Oates (1992) *"Environmental Economics: A Survey"*, Journal of Economic Literature – Montgomery, D. (1972), *Markets in licenses and efficient pollution control programs*, Journal of Economic Theory 5, 395-418.	HW 3 (due 10/15)
September 17th	Continued	
September 22nd	**Adverse Selection and Mechanism Design** * B&O, ch. 5. * Kolstad, ch. 10. * Weitzman, M. (1974), *Prices vs. Quantities*, Review of Economic Studies 41(4), 477-91. * Roberts, M.J. and M. Spence (1976), *Effluent Charges and Licenses Under Uncertainty*, Journal of Public Economics 5, 1976, 193-208. * Evan Kwerel (1977), *To Tell the Truth: Imperfect Information and Optimal Pollution Control*, Review of Economic Studies 44 (3), 595-601. * Wilson, R. (1979), *Auctions of Shares*, Quarterly Journal of Economics 93, 675-89. * Varian, H. (1994), *A solution to the problem of externalities when agents are well informed*, American Economic Review 84, 1278-1293. * S. Baliga and E. Maskin (2002*), Mechanism design for the environment*, mimeo, Kellog-Northwestern University. * Dasgupta, P., P. Hammond and E. Maskin (1980), *On imperfect information and optimal pollution control*, Review of Economics Studies 47, 857-860.	
September 24th	Continued	
September 29th	Common Pool Resources	
October 6th	**Midterm #1**	
October 8th	Continued	
October 13th	Continued (Student Presentations)	
October 15th	Continued (Student Presentations)	
October 20th	Continued (Student Presentations)	HW 4 (due 11/10)
October 22nd	**Game Theory and the Environment** * Barrett, S. (1994a) *Self-enforcing international environmental agreements*, Oxford Economic Papers 46 , 878–94.	

	* Barrett, S. (1999) *A theory of full international cooperation*, Journal of Theoretical Politics 11 , 519–41. * Espinola-Arredondo, A. (2009) *Free-riding and Cooperation in Environmental games*, Journal of Public Economic Theory, Volume 11, Issue 1, Pages 119-158 * Folmer, H., P. Van Mouche, S. Ragland (1993) *Interconnected games and international environmental problems*, Environmental and Resource Economics 3 , 313–35. * Hanley, N., H. Folmer (1998) *Game Theory and the Environment*. Edward Elgar Publishing. – Hoel, M., K. Schneider (1997) *Incentives to participate in an international environmental agreement*, Environmental and Resource Economics 9 , 153–170. – Schelling, T. (2006) *Strategies of Commitment and Other Essays*, Cambridge , MA : Harvard University Press. – Whalley, J. (1991) *The interface between environmental and trade policies*, The Economic Journal 101 , 180–189 – Hotelling, H. (1931) "*The Economics of Exhaustible Resources*," Journal of Political Economy, 39, pp. 137-175 – Dutta, P. and R.K. Sundaram (1993) "*The Tragedy of the Commons?*" Economic Theory, 3, pp. 413-426 – Apesteguia, J. (2006) "*Does Information Matter in the Commons? Experimental Evidence,*" Journal of Economic Behavior & Organization, 60, pp. 55-69. * – Levhari, D. and L.J. Mirman (1980) "*The Great Fish War: An Example Using a Dynamic Cournot-Nash Solution,*" Bell Journal of Economics, 11, pp. 322-334.	
October 27th	Continued	
October 29th	Continued	
November 3rd	Continued	
November 5th	Continued	
November 10th	**Empirical Analysis of Regulatory Performance** – Joskow, P., R. Schmalensee, and E.M. Bailey (1998), *The market for sulfur dioxide emissions*, American Economic Review 88, 669-685.* – Greenstone, M. (2002), *The impacts of environmental regulations on industrial activity: Evidence from the 1970 and 1977 Clean Air Act Amendments and the Census of Manufacturers*, Journal of Political Economy 110, 1175-1219.* – Montero J.P. , Sánchez J.M. y R. Katz (2002), *A Market Based Environmental Policy Experiment in Chile*, Journal of Law and Economics 45.* – Davis, L. (2008), *The Effect of Driving Restrictions on Air Quality in Mexico City*, Journal of Political Economy 116, 38-81.* – Fullerton and Kinnaman (1996), *Household responses to pricing garbage by the bag*, American Economic Review 86, 971-984. – O'Ryan, R. (1995), *Cost-effective policies to improve urban air quality in Santiago, Chile*, Journal of Environmental Economics and Management 31, 302-313. – Foster V. and Hahn, R. (1995), *Designing More Efficient Markets: lessons from Los Angeles Smog Control*, Journal of Law and Economics, 38, 19-48. – Schmalensee R., et al, (1998), *"An Interim Evaluation of Sulfur Dioxide Emissions Trading"*, Journal of Economic Perspectives 12, 53-68. – Stavins, R. (2000), "*Experience with Market-Based Environmental Policy Instruments"*, Handbook of Environmental Economics, eds. Karl-Göran Mäler and Jeffrey Vincent. Amsterdam: Elsevier Science.	
November 12th	Continued	
November 17th	Continued	
November 19th	Continued	
December 1st	Student Presentations	
Dec 3rd and 5th	Student Presentations	
December 8th	***Submission of Written Proposals***	

Disability Resource Accommodation:
Reasonable accommodations are available for students who have a documented disability. Please notify the instructor the first week of class of any accommodations needed for the course. Late notification may cause the requested accommodations to not be available. All accommodations must be approved through the Disability Resource Center (DRC) (Washington Building, Room 217). Please stop by or call 509-335-3417 to make an appointment with a disability specialist http://www.drc.wsu.edu.

Academic Honesty:
WAC 504-25-015. Academic dishonesty, such as cheating, plagiarism, fabrication, and fraud, is prohibited. See http://www.conduct.wsu.edu/default.asp?PageID=343 for more information and specific definitions of academic dishonesty.
As an institution of higher education, Washington State University is committed to principles of truth and academic honesty. All members of the University community share the responsibility for maintaining and supporting these principles. When a student enrolls in Washington State University, the student assumes an obligation to pursue academic endeavors in a manner consistent with the standards of academic integrity adopted by the University. To maintain the academic integrity of the community, the University cannot tolerate acts of academic dishonesty including any forms of cheating, plagiarism, or fabrication. Washington State University reserves the right and the power to discipline or to exclude students who engage in academic dishonesty. To that end, the University has established the following rules defining prohibited academic dishonesty and the process followed when such behavior is alleged. These rules incorporate Washington State University's Academic Integrity Policy, the University-wide document establishing policies and procedures to foster academic integrity. This policy is applicable to undergraduate and graduate students alike, as it pertains to dishonesty in course work and related academic pursuits. In cases of dishonesty in research and original scholarship, the University's Policy and Procedural Guidelines for Misconduct in Research and Scholarship may take precedence over the policies and procedures contained herein.
Academic dishonesty includes cheating, plagiarism, and fabrication in the process of completing academic work. These standards should be interpreted by students as general notice of prohibited conduct. They should be read broadly, and are not designed to define misconduct in exhaustive forms.

Campus Safety Plan
Can be found at http://safetyplan.wsu.edu and http://oem.wsu.edu/emergencies, contains a comprehensive listing of university policies, statistics and information related to campus safety, emergency management and the health and welfare of the campus community.

Lauren's Promise
I will listen and believe you if someone is threatening you.
Lauren McCluskey, a 21-year-old honors student athlete, was murdered on Oct. 22, 2018, by a man she briefly dated on the University of Utah campus. We must all take actions to ensure that this never happens again.

- If you are in immediate danger, call 911.
- If you are experiencing sexual assault, domestic violence, and stalking, please report it to me and I will connect you to resources or call Alternatives to Violence of the Palouse at 877-334-2887 (24-hour crisis hotline).

Any form of sexual harassment or violence will not be excused or tolerated at Washington State University. WSU has instituted procedures to respond to violations of these laws and standards, programs aimed at the prevention of such conduct, and intervention on behalf of the victims.

WSU Police officers will treat victims of sexual assault, domestic violence, and stalking with respect and dignity. Confidentiality is of the utmost importance and WSU Police will assist by providing resources to victims. In addition to its law enforcement efforts regarding sexual assault, domestic violence and stalking, WSU Police refer victims to the appropriate university and/or local community counseling and other resources devoted to assisting victims.

Advocates help survivors determine their own needs in regards to their physical and emotional health, reporting options, and academic concerns. They connect survivors to campus and community services, and provide accompaniment to important appointments (court, hospital, and police) and support throughout the process. WSUPD can also connect you with advocacy services, if desired. The local advocacy group is Alternatives to Violence of the Palouse, whose services are free, immediate, and confidential.

Other confidential resources include WSU Counseling and Psychological Services. If you would like to speak with a counselor after business hours, WSUPD can contact the on-call counselor and have them call you directly or a crisis telephone number is provided. Information shared with the counselor will not be provided to WSUPD without expressed permission from you.

WSU Counseling and Psychological Services 509-335-2159 (crisis services line)

Disclaimer: This syllabus is subject to change to facilitate instructional and/or student needs.